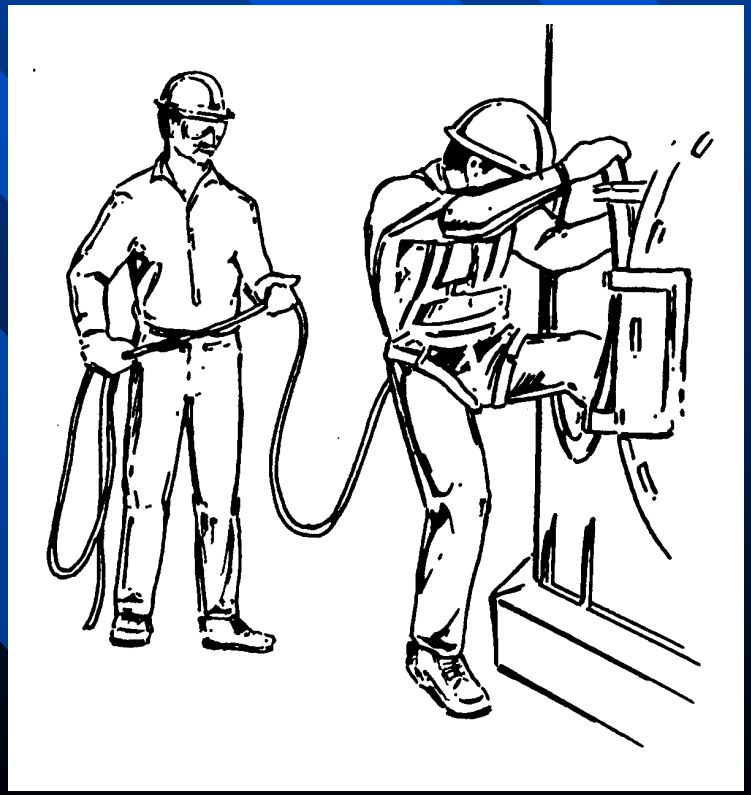
Confined Spaces

Supervisors Course



Overview

- Why are we here?
- What are confined spaces?
- What is permit required Vs. non-permit required space?
- What are the hazards associated with confined spaces?
- What are the requirements for permit required confined space?
- How do I administer my confined space program?

Why are we here?

- OSHA studies and analysis conducted from 1975 - 1993 determined that a significant number of deaths and injuries are directly related to confined space entry..
- OSHA implemented final rule (OSHA Std 1910.146) on confined space entry April 15, 1993
- Air Force established written program via AFOSH Standard 91-25, 21 NOV 94.

What is a Confined Space?

- Is large enough and configured so that a worker can bodily enter and perform assigned work
- Has limited or restricted means of access
- Is not designed for continuous human occupancy

Examples

Confined Spaces

Tanks, vessels, silos, storage bins, hoppers, vaults, manholes, and pits, aircraft fuel cells

Not Confined Spaces

Security vaults, walk in closets, above false ceilings, walk in refrigerators and freezers,

Permit Required Confined Spaces

- Contains or has a potential to contain a hazardous atmosphere
- Contains a material that has the potential for engulfing the entrant
- Has sloping walls or floor that taper to small cross section
- Contains any other recognized safety and health hazard.

Non-Permit Confined Space

A space that does not contain, or with respect to atmospheric hazards, have the potential to contain any hazards capable of causing death or serious physical harm.

What are the Hazards?

- Atmospheric Hazards
  - Oxygen Deficient
  - Oxygen Enrichment
  - Flammable Gases and Vapors
  - Toxic Gases
- Chemical Hazards

What are the Hazards?

- Electrical Hazards
- Engulfment Hazards
- Mechanical Hazards
- Physical Hazards

Atmospheric Hazards

- Oxygen Deficiency
  - Less than 19.5%
- Oxygen Enrichment
  - Greater than 23.5%
- Flammable Gases and Vapors
  - Greater than 10% Lower Explosive Limit (LEL)
    - »Hydrocarbon Fuels
    - »Methane

Toxic Atmospheric Hazards

An atmosphere concentration of any chemical substance over the occupational exposure limit (OEL) which is capable of causing death, incapacitation, impairment of ability to self-rescue, injury, or acute illness due to its health affects

- **Hydrogen Sulfide**
- **Methane**

Permit-Required Spaces

What are the requirements for permit required confined space?

Prior to Entry

- Evaluate work requirements
- Initiate Permit
- Gather all PPE and Test Equipment
- Lock Out/Tag Out Energy Sources
- Test Atmosphere for all possible hazards
- Ventilate
- Test again if necessary

Prior to Entry

- Barricade Area around work site (if necessary)
- Check radios or telephone equipment
- Post Attendant
- Sign permit

Evaluate Work Requirements

- What hazards are involved?
- Involve introducing hazardous elements?
  - Welding
  - Toxic Fumes
- Can hazards be eliminated or reduced?
  - Ventilation
  - Substitution of Chemicals
  - Personal Protective Equipment

Evaluate Work Requirements

- How many people are needed?
  - Are they trained in CS entry?
  - Are they certified for the tasks involved?
- What Equipment is needed?
  - Test and Rescue Equipment
  - Explosion Proof
  - Ventilation
- What emergency procedures are in place?

Initiate Permit

- Entry Permit Vs Master Entry Permit
- Location and Purpose of Entry
- Permit Space Probable Hazards
  - (Oxygen Deficiency or Enrichment, Flammable Gases or Vapors, Dust, Materials Harmful to Skin, Engulfment, Mechanical, Electrical)
- Equipment Required for Entry and Work
  - (PPE, Respiratory, Testing, Communication, Rescue)

Initiate Permit

- Rescue and Emergency Services
  - Confirm - Don’t Assume
- Authorized Personnel
  - Attendants
  - Entrants
- Preparation for Entry
  - (Preparations, Isolation Methods, Ventilation Methods, Communication Methods, Additional Permits, Personnel Awareness)

Initiate Permit

- Atmospheric Testing and Monitoring Record
- Authorized by Entry Supervisors

  (Document the basis for reclassifying a permit-required space to a non-permit confined space on a separate sheet and attach it to the entry permit. The entry supervisor signs or initials next to the statement)

Specific Duties (AFOSH Std 91-25)

- Entry Supervisors
  - para 2.15
- Entrants
  - para 2.16
- Attendants
  - para 2.17

Confined Space Programs

- Written Programs
- Master Entry Permits
- Test Equipment
- Training
- Confined Space Inventory
- General Record Keeping

Written Confined Space Program (AFOSH Std 91-25)

- Program should highlight
  - Responsibilities
  - General Requirements
  - Specific Requirements
  - Emergency and Rescue Procedures
  - Contractor Requirements (if any)
  - Record keeping
- Can be Squadron Reg or Shop OI

Master Entry Permits (MEP)

- Issued by the CSPT
- Good for one year
- Commanders designate entry supervisors to issue permits
- Tailored to Individual Shops
- Reviewed Annually by CSPT

Training Programs

- All personnel must be trained for the tasks to be accomplished
  - Entrants
  - Attendants
  - Entry Supervisors
- Training guidelines are encouraged
- Document training on AF Form 55 and keep list in Confined Space book

Test Equipment

- Maintain enough testers to cover all work to include deployments, downtime for maintenance etc.
- Ensure everyone is trained properly on the use of equipment
- Ensure equipment is properly calibrated
  - If you do it yourself, ensure training is documented on who can calibrate

Confined Space Inventory

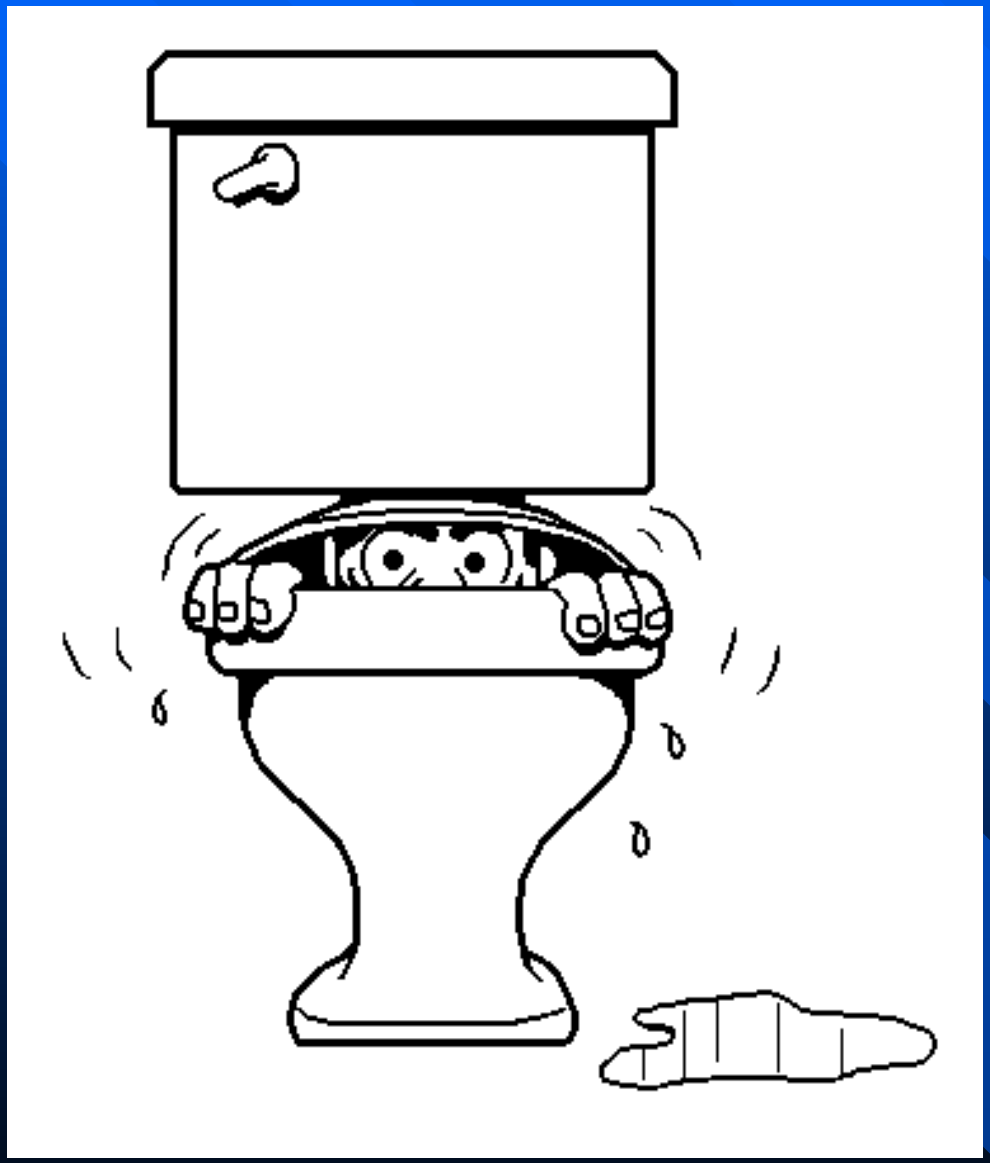
- Initial Survey identifies CS type
- Inventory broken down into permit-required and non-permit required
  - Specify location and hazards involved
- Keep a copy of inventory in CS book
- Provide a copy to Safety, Fire Dept., Health
- Review all CS and inventory annually

Confined Space Book

- Copy of AFOSH Std 91-25
- Copy of Master Entry Plan (MEP)
- Confined Space Inventory
- Equipment
  - Test/Monitoring
  - Rescue
  - PPE

Confined Space Book

- Training
  - Training Dates
  - Names of Personnel Trained
  - Tasks certified to accomplish
  - PPE training
- Emergency Procedures
- List of Unit, Base Points of Contact
- All completed Permits (AF Form 1024)
  - Maintain for one year



The

Ultimate

Confined

Space!